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DEPARTMENT OF THE AIR FORCE
Air and Space Basic Course School (AETC)
Maxwell Air Force Base, Alabama 36112

LESSON PLAN

A2250 - TEAM PROBLEM SOLVING

CONTENTS

RECORD OF CHANGES

CHANGE NUMBER	REMARKS

SUMMARY OF CHANGE

EDUCATIONAL GOALS

A2000 Area Objective: Apply leadership skills to influence and direct people and resources to accomplish the mission.

A2200 Phase Objective: Apply effective Teambuilding and Problem Solving skills.

A2250 – TEAM PROBLEM SOLVING (TPS)

Lesson Objective 1: Demonstrate teambuilding and problem solving skills in a group situation.

Samples of Behavior:

(F) 1.1 – Use appropriate teambuilding skills throughout the ABC experience.

(F) 1.2 – Apply the principles of the ABC problem-solving model.

Lesson Description: This lesson consists of two 55 minute flight room exercises that will challenge the flight. The flight commander will **not** participate other than to provide initial instructions and concluding feedback.

Prerequisite: A2210 - Fundamentals of Team Building and Problem Solving

Preparation: Review the Six Step Problem Solving Process.

Rationale/Linkage: These exercises are designed to foster development of the team concept and illustrate the importance of a problem solving process as presented in lesson A2210, *Fundamentals of Teambuilding and Problem Solving*. The exercises will expose students to some of the difficulties associated with working within a group, give students an understanding of problems that non-effective communications can create, and give students an appreciation of the difficulties of information sharing.

INSTRUCTIONAL PLAN

1. TITLE AND LENGTH OF EXERCISE, Team Problem Solving (TPS), A2250 (0:55)

2. RELATION TO OTHER INSTRUCTION: This exercise is designed to demonstrate the utility of a problem solving process. It is also designed to continue fostering teamwork and to introduce the students to the difficulties associated with communication when fog and friction are introduced. In these exercises, students are given the opportunity to apply the material learned in lesson 2210, Fundamentals of Team Building and Problem Solving.

3. GENERAL METHOD OF INSTRUCTION:

a. Presentation Method: Tabletop Exercise

b. Time Outline:

Segment Time	Total Time	Description
0:05	(0:05)	Introduction
0:05	(0:10)	Planning
0:25	(0:35)	Execution
0:15	(0:50)	Feedback
0:05	(0:55)	Conclusion

c. Instructor Preparation:

No later than the day prior to the exercise, ensure:

- You have enough copies of the instruction sheets.
- You have the clue sheets cut and prepared.
- You have printed a copy of the answer key/feedback sheet.

d. Instructor Aids/Handouts

See the Flight Commander information sheet for each TPS.

e. Student Preparation:

None

f. Strategy: The flight commander administers these exercises. The lesson provides a mental challenge to the students in order to give them an opportunity to use the six-step problem solving process and further the team building process. The students have 25 minutes in which to solve a puzzle with various constraints. Each flight commander will observe his or her flight, answering only questions that do not deal directly with the information contained in the puzzle. Take notes to provide feedback and to generate discussion.

4. DETAILS OF INSTRUCTION:

a. Introduction: (:05)

1) Introduce this exercise and overview the three stages:

   a) Planning – an overall instruction sheet with limited information on this particular puzzle.
   b) Execution – 25 minutes to come up with the correct answer.
   c) Debrief – led by the flight commander to highlight both successful and unsuccessful strategies.

2) Make sure the tables are cleared of all books, papers, pens, etc. Hand out the clues to the students and start the exercise.

b. Planning (:05)

1) Pass out the instruction sheets.
2) Give the students a hack.
3) Time for 5 minutes.

c. Exercise (:25)

1) Pass out the clue cards and tell the students not to look at them until you start the time.
2) 'Hack' for the 25 minute time.
3) Monitor the students for any rules violations
4) Use the feedback sheet to record your observations.
5) Begin the feedback after the students give you an answer or at the end of the 25 minute timed period, whichever is first.
6) Collect the instruction sheet and clues. DO NOT allow the students to leave the classroom with any clues or instructions.

d. Feedback (:15)

1) Using the feedback sheet as a guide, give specific and constructive feedback to the flight.
2) Focus on positive performance, not just areas to improve upon. Do not demotivate or demoralize the flight or individual members.
3) Use the feedback guide at the end of this lesson.

e. Conclusion: (:05)

TPS 2 Flight Commander Information

General Information:

This exercise demonstrates the information sharing process. Each student is given a clue card with a name and two additional pieces of information. The format of the information is linked to the information other flight member's hold. Figuring out who has what information is the challenge the flight must overcome.

Preparation:

Make copies of all the instructions and clues prior to the exercise. There are no additional instructional aids required.

Execution:

There are a few ways to solve this problem. The optimum way is for someone to go to the whiteboard and develop a matrix to track who has what information.

Success:

If your flight reports the correct solution in:

Time (min)	< 16	< 17	< 18	< 19	< 20	< 21	< 22	< 23	< 24	< 25	> 25
Points	10	9	8	7	6	5	4	3	2	1	0

If your flight reports an incorrect solution or runs out of time they receive zero points.

Feedback:

Use the feedback guide at the end of the lesson.

Exceptions:

If your flight has **12** students, give one student two clues.

If your flight has **11** students, give two students two clues each.

TPS 2 INSTRUCTIONS

- You must have all materials removed from your tabletop.
- You must solve the given exercise in less than 25 minutes.
- All flight members will participate in this exercise.
- If you violate the rules you will be given one warning. A second violation results in forfeiting the exercise.
- Your flight commander will not answer any questions during the exercise.

The object of this exercise is to report to your flight commander the name, rank and crew position of each member of the flight in as short a time as possible. You have a total of 25 minutes to complete the exercise.

- Five minutes after you were given this instruction sheet you will be given a clue card with your name and an additional piece of information.
- Do **not** look at this clue card until told to do so.
- You may **not** show or allow anyone else to see your clue card.
- You **may** speak at any time during the execution.
- You **may** use any materials in the flight room to complete your task.
- You only have **one** chance to report the correct information.
- There is no more than **One** person in each rank/crew position.
- Use the remaining time in this planning phase to decide on a course of action.
- Turn in all TBX material to your flight commander at the end of the exercise.

Good Luck…..

TPS 2 Master Clue Card

Winter – You are a Lt. No captain has the same job as Black.
Lynch – You are a DSO. Dixon and Billings are the same rank.
Billings – You are a pilot. Wood washed out of UPT.
Evans – You are an OSO. Gates graduated from UPT.
Banks – You are a Captain Banks and Dixon have the same crew position.
Smith – You are a Lt. There are only 2 Captains.
Gates – You are a Lt. Col. Evans and Ryan have the same AFSC.
Dixon – You are a co-pilot. Banks and Lynch are the same rank.
Black – You are a Lt. Col. Gates never sat in the left seat.
Johnson – You are a Major. Ryan is the most senior in his crew position.
Jones – You are a co-pilot. Billings is not a Lt. Col.
Ryan – You are a Major. Johnson trained Lynch for his position.

Wood – You are a DSO.
Winters crew position has all ranks but Captain.

TPS 2-Answer Key / Feedback Sheet

SOLUTION	PILOT	CO-PILOT	OSO	DSO
LT	Winter	Jones	Evans	Smith
CAPT	X	Banks	X	Lynch
MAJ	Billings	Dixon	Ryan	Johnson
LT COL	Black	Gates	X	Wood

Planning Comments: Solution Time _____

Execution Comments:

0+00

3+00

6+00

9+00

12+00

15+00

18+00

21+00

24+00

TPS 3 FLIGHT COMMANDER INFORMATION

General Information:

This exercise demonstrates to the student that the small group or team is part of a larger picture and that sometimes the smaller unit has to sacrifice for the greater good of the entire organization. The exercise simulates a wing commanders staff meeting with six of his/her squadron commanders. The purpose of the staff meeting is to assign people from various squadrons to new wing taskings. The squadron commanders (two students acting as one), each have an instruction sheet with individual constraints which should motivate them to contribute as few people as possible to the wing taskings.

Preparation:

Make copies of all the instructions and clues prior to the exercise. There are no additional instructional aids required. Decide on which student you want to play the role of the squadron commander. This should be one of the more quiet students in the flight.

Execution:

Each squadron commander should want to keep all his/her personnel in the squadron but at the same time be willing to help with some of the wing taskings. Do not let the wing commander simply take charge and decide unilaterally who fills which tasking. The bottom line is for the students to discuss how one squadron giving up or not giving up people will affect other organizations in the wing.

Feedback:

Use the feedback guide at the end of the lesson.

Exceptions:

If your flight has **12** students, let one squadron commander be a single student.
If your flight has **11** students, let two squadron commanders be a single student.

TPS 3 INSTRUCTIONS

- You must have all materials removed from your tabletop.
- You must solve the given exercise in less than 25 minutes.
- All flight members will participate in this exercise.
- If you violate the rules you will be given one warning. A second violation results in failure of the exercise.
- Your flight commander will not answer any questions during the exercise.

This is a role playing exercise. This is **not** a scored event. The setting is a Wing Commander's staff meeting. One of you will be selected by your flight commander to play the role of the wing commander. The remaining 12 members of your flight must pair off to 6 groups of 2. Each pair will act as a squadron commander with their own unique set of information and constraints. The wing has been given several manpower taskings it must assign at this meeting. Your job is to work with the other squadron commanders to fill the taskings with people from around the wing. You must use the remainder of the planning period to decide on who will pair with who and move to sit next to that person. Let your flight commander know as soon as you are ready.

The object of this exercise is to submit a completed tasking list within 25 minutes, that the wing commander believes fairly distributes taskings.

- Five minutes after you were given this instruction sheet you will be given your individual information sheets.
- Do **not** look at this sheet card until told to do so.
- You may **not** show or allow anyone else to see your information sheet.
- You may **not** read directly from your information sheet at any time.
- You **may** speak at any time during the execution.
- You **may** use any materials in the flight room to complete your task.
- Use the remaining time in this planning phase to decide on a plan.
- Turn in all TBX material to your flight commander at the end of the exercise.

Good Luck…..

WING COMMANDER
INSTRUCTION SHEET

You are the 78th ABW Commander at Yeager AFB. Your base has several worldwide taskings that you must fill at this meeting. You have assembled six of your squadron commanders for a meeting to decide which squadron will contribute personnel to which tasking. You need all of the taskings filled and you would like for the squadron commanders to decide on their own how many personnel should come from each squadron. During this exercise, feel free to discuss the issues with your squadron commanders. However, if your commanders cannot arrive at a solution before time expires, you will have to assign personnel as you see fit.

Take your role seriously. Do not allow one squadron commander to 'bully' another. Your job is to see to it that the taskings are spread "fairly" around the wing.

If you feel the taskings are not being distributed fairly among the squadrons, one way to ensure fairness in your wing is to have each squadron commander multiply their fair share percentage by the number of total tasking requirements. This will give each unit's tasking.

You are the only one who can exempt anyone from these taskings. Keep in mind the impact your decision may have on the Wing's mission and morale.

You must have the table below completed in the allotted time.

Tasks that must be filled.

	Flying Squadron	Maintenance Squadron	Comm Squadron	Civil Eng. Squadron	MSS Squadron	Security Forces Squadron
Task #1						
Task #2						
Task #3						
Task #4						
Task #5						

Task #6						

Task #1 4 people for the Bird Suppression Team. 60 day tasking

Task #2 1 person for staff support at Sotto Cano, Honduras. 45 day TDY

Task #3 3 people to Prince Sultan AB, KSA. 90 day TDY

Task #4 8 people for Dhahran, Saudi Arabia. 90 day TDY

Task #5 3 people to support the Environmental Inspection Team. 45 day TDY

Task #6 5 people to augment ABC. 180 day TDY

FLYING SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 908th Flying Squadron of the 78th ABW at Yeager AFB.**
- **You have 99 troops under your command.**
- **Currently, 15 of your troops are on leave and 39 are TDY, or deployed overseas.**

As the Squadron Commander, it is your responsibility to ensure that your squadron is mission ready at all times. With a shortage of pilots, navigators, and other flight crewmembers in the Air Force, you are pressed to meet current requirements. With people already gone, you cannot afford to give up too many people to these wing projects and still expect to remain fully mission capable. If you lose more people, you are sure to drop from a C1 status (fully mission capable) down to a C2 status (partially mission capable) until those people come back. To make matters worse, your unit is next in rotation for deployment to the Gulf. If your squadron is still at a C2 status, you will not be able to deploy, forcing another squadron to deploy ahead of schedule. In order for your unit to remain at C1 status, you must not lose anymore personnel.

- **You feel that your unit has, in the past, contributed more than their fair share to these wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his manpower numbers to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

MAINTENANCE SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 90th Maintenance Squadron of the 78th ABW at Yeager AFB.**
- **You have 230 troops under your command.**
- **Currently, 12 of your troops are on leave and 75 are TDY, or deployed overseas.**

Your squadron is responsible for the maintenance of all aircraft for the 90th Flying Squadron. As such, it is your responsibility to make sure that the flyers have enough aircraft available at all times to carry out their mission. Currently, you have enough troops to repair all aircraft on time without overworking any of your people. Every time one of these wing manpower taskings comes up, everyone looks to you to provide the most people, since you have the largest total number of troops working for you. Normally, you can afford to spare as many people as they ask you to. However, the 90th FS is preparing for a deployment next month, and your unit is going to be working overtime to get all aircraft ready for deployment. Losing anymore people will strip you of the ability to refurbish two of the 90th FS' aircraft, reducing the squadron's in-theatre capability.

- **You feel that your unit has, in the past, contributed more than your fair share to these wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his manpower numbers to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

CIVIL ENGINEERING SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 90th Civil Engineering Squadron of the 78th ABW at Yeager AFB.**
- **You have 87 troops under your command.**
- **Currently, 17 of your troops are on leave and 16 are TDY, or deployed overseas.**

As Commander of the 90th Civil Engineering Squadron, you are responsible for all road, runway, and building maintenance and repair. You also deploy to remote locations to set up forward air bases when called upon. Currently, CE has two major projects on base. First, CE is getting ready to repair and modify the storm drainage system on base. This is a massive project that has been needed for a number of years, which can't afford to be delayed any longer. It is the type of project that can't realistically be halted in the middle of construction. Secondly, the second active runway is currently closed due to repair work. Base Ops is after to you to hurry up and finish it so normal ops tempo can resume. You can maintain your current projected finish date on both projects, but only if you don't have to give up anybody. If you give up anymore troops, you have two choices; 1) You can delay the start of the drainage work until your people return. This will cause significant problems since the rainy season will have started by then, complicating your work. 2) You can delay finishing the runway repair work for another month, causing the Base Ops to ride you even harder.

- **You feel that your unit has, in the past, contributed more than your fair share to these wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his manpower numbers to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

COMMUNICATIONS SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 90th Communications Squadron of the 78th ABW at Yeager AFB.**
- **You have 67 troops under your command.**
- **Currently, 7 of your troops are on leave and 2 are TDY, or deployed overseas.**

As Commander of the 90th Communications Squadron, you are responsible for all communication systems used by the base and its units. These systems include phone, television, computer, internet, Local Area Network (LAN), and combat communications capability. Your troops are already stretched thin due to a new LAN system being installed on base. To be honest, you could really stand to have *more,* not less, people in your unit. Losing any more people to these projects will slip the timetable for completion of the new LAN system back at least two months. If this happens, you will incur the wrath of every other unit on the base, as they complain to you about the delay.

- **You feel that your unit has, in the past, contributed more than your fair share to these wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his/her manpower figures to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

MISSION SUPPORT SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 90th Mission Support Squadron of the 78th ABW at Yeager AFB.**
- **You have 125 troops under your command.**
- **Currently, 9 of your troops are on leave and 12 are TDY, or deployed overseas.**

As Commander of the 90th Mission Support Squadron, you are responsible for all personnel, education, and family support activities that occur on base. Currently, your unit is experiencing a LAN (Local Area Network) upgrade, courtesy of the Communications Squadron. This upgrade is causing the current system to go down for extended periods of time. Being a unit heavily dependent on computers, the upgrade is causing massive problems in getting work accomplished. Much of the routine computer work has to be done by hand, causing considerable delays. Since the Communication Squadron is unable to give you a firm date for completing the LAN upgrade, you do not want to commit your troops to any Wing projects, risking giving up more troops than you can afford to.

- **You feel that your unit has, in the past, contributed more than your fair share to these Wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his manpower numbers to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**
- **If you and the other squadron commanders decide to divide the taskings mathematically use the following fair share formula: number available per unit divided by the number available from all units is your fair share percentage.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

SECURITY FORCES SQUADRON COMMANDER
INSTRUCTION SHEET

- **You are the commander of the 90th Security Forces Squadron of the 78th ABW at Yeager AFB.**
- **You have 56 troops under your command.**
- **Currently, 14 of your troops are on leave and 2 are TDY, or deployed overseas.**

As Commander of the 90th SF Squadron, you are responsible for a myriad of security related items. These range from Air Base Defense and aircraft security and perimeter monitoring, down to routine traffic patrol. Being in Security Forces, you are somewhat unique in that many of your troops pull 12-hour shifts rather than the 8-hour days that most other units follow. With your duty rotation, you rarely have many spare people at any one time. This situation is aggravated due to the fact that you had 14 troops just return from a TDY to the desert. They all have a standard week of leave due for returning from an extended TDY. If you have to send troops to the wing for non-essential duties, you'll be forced to spread your remaining troops around thinly. This is not good at a base with over 20 multi-million dollar aircraft to guard, which is located in a bad part of town. You'll be sure to catch hell from everyone if your troops fail to apprehend a local criminal breaking into a house on base. You feel “if they don't want that to happen, they shouldn't make me "volunteer" any of my troops.”

- **You feel that your unit has, in the past, contributed more than your fair share to these wing projects. In your opinion, it's time some of the other units started pulling their fair share of the work.**
- **You know for a fact that at least one of the other squadron commanders in the room has fudged (to put it lightly) his manpower numbers to avoid sending his/her people.**
- **The number of troops eligible for the Wing/CC taskings would be your total unit strength minus any exemptions.**

Take your role seriously. If you give up anybody, someone in your squadron will have to work longer hours. Remember - the members of your squadron are depending on you!

TBX 3 Feedback Sheet

Note: This scoring system is based on each unit 'hurting' the same amount (giving up the same percentage of total people). The Fair share formula is taken from the 42 Air Base Wing Ready Program and is one method of resolving these taskings.

Unit strength – exemptions = # available in your unit

Available per unit / # Available of all units = Fair Share %

Fair Share % x Total Ready Requirements (24) = Fair Share Tasking (round to the nearest whole number)

	total avail minus TDY	Fair share %	Fair share tasking	Rounded number	TDY exempt	total avail
Fly	60	0.115838	2.779923	**3**	39	518
MX	155	0.299228	7.181467	**7**	75	
CE	71	0.137066	3.289575	**3**	16	
Comm	65	0.125483	3.011583	**3**	2	
MSS	113	0.218147	5.235521	**5**	12	
SF	54	0.104247	2.501931	**3**	2	
				24	146	

SQUADRON	# OF BODIES FOR TASKINGS
Flying	3
Maintenance	7
Civil Engineering	3
Comm	3
Mission Support	5

Security Forces	3

Feedback:

- What are other possibilities of dividing taskings throughout the wing and are they optimal in certain situations? Explain.

- What were your reasons for choosing who would be exempt. Why would you not exempt those on leave?

- As a Squadron Commander what other considerations do you have to consider when giving up people for taskings?

- Did you see why communication was so important? Explain.

Notes:

Execution Comments:

0+00

3+00

6+00

9+00

12+00

15+00

18+00

21+00

24+00

TEAM PROBLEM SOLVING FEEDBACK GUIDE

Initial Planning

Did the students come up with ANY sort of plan prior to start of the execution phase?

Did EVERYONE understand the plan?

Did the students clearly understand the problem and the objective?

What (if any) key supporting roles did other students take?

-- timekeeper, gate keeper, facilitator, recorder (if appropriate)

Did anyone take charge of the overall communication process and lay out ground rules?

Overall

Did the students follow the 6-Step Problem Solving Process?

1. Identify the Problem

- Flight can do this during initial planning, as the objective was clearly stated.
- Did anyone correctly articulate the problem (with constraints)?
- Did they write the problem down on the white board?
- Did a student keep time?

2. Gather the data

- Did anyone communicate the types of data each person had, so people know where to go to get information?
- Did anyone identify trends in the information ?

3. Identify possible solutions

- Did the students list more than one possible solution?

4. Test possible solutions

- Did individual team members affected by a proposed solution check to see if it actually solved the problem?
- Did individual team members affected by a proposed solution subordinate their unit to the cause of the greater organization? Or, did they look out only for their own interests?

- Did the team drive towards a *simple* solution?

5. Select the best solution
- Did the team agree on a “best” solution after testing possible alternatives?

6. Implement the solution
- Did they implement the solution by providing the flight commander the list within the time constraints?

Debrief Example

- **Ask the students how they thought the exercise went.**
- **Ask if they followed the problem solving process**
- Ask them what they would do to improve their performance if they repeated the exercise again.
- Note any outstanding (positive or negative) aspects of their problem solving for the exercise based on the notes you took during the exercise.